

# MCA Practice Problems Worksheet #3

(algebra)

Key  
Name \_\_\_\_\_

1. Simplify  $3x + 2(x - 5)$

a.  $x - 10$

b.  $5x + 10$

☒ c.  $5x - 10$

d.  $5x - 5$

2. Solve the equation  $5x + 2 = x + 7$

~~a.  $\frac{4}{5}$~~

b.  $\frac{-5}{4}$

~~c.  $\frac{7}{5}$~~

☒ d.  $\frac{5}{4}$

3. If  $2x - 4(3 - x) = 18$  then  $x = ?$

a.  $-15$

b.  $-3$

c.  $1$

☒ d.  $5$

$$\begin{aligned} 2x - 12 + 4x &= 18 \\ 6x - 12 &= 18 \\ 6x &= 30 \end{aligned}$$

4. What are the zeros of the function:  $y = x^2 - x - 6$ ?

☒ a.  $-2$  and  $3$

b.  $\frac{5}{2}$  and  $-\frac{5}{2}$

c.  $3$  and  $-5$

d. there are no zeroes

$$\begin{aligned} (x-3)(x+2) \\ 3 \quad -2 \end{aligned}$$

5. Which point is a solution of the linear system:  $y = -2x - 8$  and  $y = \frac{3}{2}x + \frac{5}{2}$

☒ a.  $(-3, -2)$

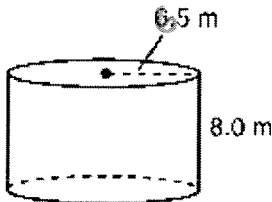
b.  $(-1, -6)$

c.  $(3, 7)$

d.  $(21, -50)$

$$\begin{aligned} 2y &= 3x + 5 \\ -4x - 16 &= 3x + 5 \\ -21 &= 7x \end{aligned}$$

6. The volume of a right circular cylinder is  $V = \pi r^2 h$ . What is the approximate volume of this right circular cylinder?



$$V = \pi (6.5)^2 \cdot 8$$

a.  $265.5 \text{ m}^3$

b.  $326.7 \text{ m}^3$

c.  $1036.9 \text{ m}^3$

☒ d.  $1061.9 \text{ m}^3$

$$10a + 6b - 2c - 20a + 10b + 15c$$

7. Katie is simplifying this expression:  $2(5a + 3b - c) - 5(4a - 2b - 3c)$ . Which of the following expressions is equivalent?

☒ a.  $-10a + 16b + 13c$

b.  $-10a - 4b - 4c$

~~c.  $30a + b + 2c$~~

~~d.  $30a - 4b - 17c$~~

8. Solve this equation:  $3 - 2x = 17$

$$-14 = 2x$$

a.  $x = 7$

b.  $x = -10$

☒ c.  $x = -7$

d.  $x = 10$

9. Solve this equation:  $x^2 - 6x + 5 = 0$

$$(x-5)(x-1) = 0$$

a.  $x = -1, -5$

☒ b.  $x = 1, 5$

c.  $x = 2, 3$

d.  $x = -2, -3$

10. Solve this system of equations:  $y = 4x - 8$  and  $y - 2x = 0$

a.  $(-4, -8)$

b.  $(1, 2)$

c.  $(-1, -2)$

☒ d.  $(4, 8)$

11. Ralph has borrowed \$600 for 2 years at a rate of 5%. Use formula  $I = Prt$  to find the total amount of interest he will pay.

☒ a. \$6000

☒ b. \$60

c. \$660

d. \$30

$$600(.05)(2) = 1$$

12. Solve this inequality:  $-3x + 6 < -21$

☒ a.  $x > 9$

b.  $x < 5$

c.  $x < 9$

d.  $x > 5$

$$\begin{aligned} -3x &< -27 \\ 27 &< 3x \\ x &> 9 \end{aligned}$$

13. Solve this equation:  $3(x - 4) = 2(6x + 3)$

a.  $x = \frac{-2}{3}$

b.  $x = \frac{-6}{5}$

☒ c.  $x = -2$

d.  $x = \frac{-7}{9}$

$$\begin{aligned} 3x - 12 &= 12x + 6 \\ -18 &= 9x \\ x &= -2 \end{aligned}$$

8. The volume of a cylinder is given by  $V = \pi r^2 h$ , where  $r$  is the radius of the base and  $h$  is the height of the cylinder. Find the height of a cylinder that has a volume of  $810\pi$  square feet and a radius of 9 feet.

a. 100 feet

b.  $10\pi$  feet

c. 90 feet

☒ d. 10 feet



$$\begin{aligned} 810\pi &= 9^2 \cdot h \cdot \pi \\ 810\pi &= 81h\pi \\ 810 &= 81h \\ 10 &= h \end{aligned}$$

9. Simplify:  $3 + 3(4 + 5)^3$

a. 4374

☒ b. 149

☒ c. 2190

☒ d. 19,686

$$\begin{aligned} 3 + 3(9)^3 \\ 3 + 3(729) \end{aligned}$$

10. Simplify  $7 \cdot 7 + 15 - 6 + 2$

a. 50

b. 61

c. 53.5

d. 29

$$49 + 15 - 6 + 2$$

☒ 60

11. What is the value of  $\frac{a - 2b + 3}{5}$  when  $a = 3$  and  $b = -4$ ?

☒ a.  $\frac{-2}{5}$

☒ b.  $\frac{-7}{5}$

☒ c.  $\frac{14}{5}$

d. 1

$$\frac{3 + 8 + 3}{5} = \frac{14}{5}$$

12.

Match the equation with its graph

$y = 2x - 5$

☒ (D)

$y = \frac{1}{2}x + 2$

☒ (A)

$x + 2y = -4$

$2y = -x - 4$   
☒ (E)

$y - 2x = -2$

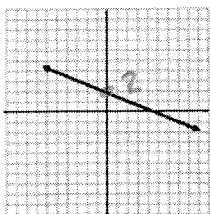
$y = 2x - 2$

☒ (C)

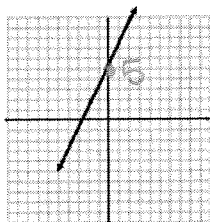
$y - 1 = 2(x + 2)$

$y = 2x + 4 + 1$   
 $y = 2x + 5$

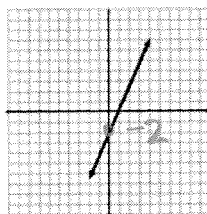
☒ (B)



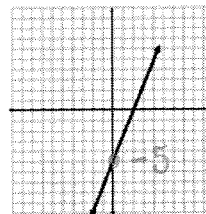
A



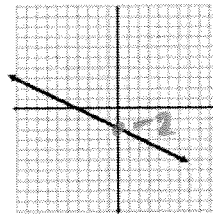
B



C



D



E